

IN THE CLAIMS

Claim 1 has been cancelled.

1. (Cancelled)

Claim 2 has been amended as follows:

2. (Currently Amended) A method as claimed in claim [[1]] 15 wherein said image comprises a plurality of two-dimensionally arranged pixels, each having a grey scale value between a minimum value and a maximum value, and wherein said image ~~date~~ data represent the respective grey scale values of the pixels, and wherein the step of detecting said image edges in said image comprises determining for each pixel, a derivative value from the grey scale value for that pixel and a grey scale of at least one other pixel and determining said image edges using said derivative values.

3. (Original) A method as claimed in claim 2 comprising determining said derivative values as a sum of at least four summands, and forming each summand as a product of said derivative in a derivative direction and a weighting factor, and comprising determining said weighting factor in said computer specific to the derivative.

Claim 4 has been amended as follows:

4. (Currently Amended) A method as claimed in claim 3 comprising employing pairs of directions as said derivative directions, the directions in each pair being oppositely aligned directed.

5. (Original) A method as claimed in claim 4 comprising employing pairs of derivative directions disposed at an angle that is different from 0° and 180°.

6. (Original) A method as claimed in claim 5 comprising employing pairs of derivative directions disposed at an angle of 90°.

7. (Original) A method as claimed in claim 5 wherein said image comprised main axes orthogonal to each other and comprising employing derivative directions proceeding parallel to said main axes.

8. (Original) A method as claimed in claim 3 comprising, in said computer, reducing the weighting factor that is specific to the derivative for a pixel under consideration when said computer determines a non-zero derivative for an intermediate pixel disposed between the pixel under consideration and an initial pixel, said initial pixel being disposed at an edge of said image and a vector from said initial pixel to the pixel under consideration corresponding to the respective derivative direction.

9. (Original) A method as claimed in claim 8 wherein, if a magnitude of the derivative for the intermediate pixel is equal to the magnitude of the derivative for the pixel under consideration, in said computer reducing the weighting factor specific to the derivative of the intermediate pixel more, if said derivative of the intermediate pixel is negative, than if said derivative for said intermediate pixel is positive.

Claim 10 has been amended as follows:

10. (Currently Amended) A method as claimed in claim ~~[[1]]~~ 15 comprising employing, as said information ~~about the inner structure of the diaphragm describing said polygon~~, a designation of a known angle formed between two of said diaphragm edges and comprising, in said computer, detecting said diaphragm edges by detecting groups of image edges which, with one another, form said known angle.

Claim 11 has been amended as follow:

11. (Currently Amended) A method as claimed in claim 10 comprising additionally employing, in said information ~~about the inner structure of the diaphragm~~ describing said polygon , a designation that two of said diaphragm edges are parallel to each other and, in said computer, determining image edges as being diaphragm edges only if said images are parallel to each other and exhibit a minimum spacing from each other.

Claim 12 has been amended as follows:

12. (Currently Amended) A method as claimed in claim ~~[[1]]~~ 15 wherein said image comprises a plurality of two-dimensionally arranged pixels, each having a grey scale value between a minimum value and a maximum value, and wherein said image data represent the respective grey scale values of the pixels, and wherein the step of detecting said image edges in said image comprises determining for each pixel, a derivative value from the grey scale value for that pixel and a grey scale of at least one other pixel and determining said image edges using said derivative values, and employing, as said information ~~about the inner structure of the diaphragm~~ describing said polygon, a designation of a known angle formed between two of said diaphragm edges and comprising, in said computer, detecting said diaphragm edges by detecting groups of image edges which, with one another, form said known angle, and, for said groups of image edges forming with one another said known angle, forming a sum value in the computer of the derivative values and testing said groups of image edges with larger sum values before groups of image edges with lower sum values.

Claims 13 and 14 have been cancelled.

13-14. (Cancelled)

Add the following new claims:

15. (New) A computer-assisted method for detecting edges of a mechanical diaphragm in an image of a subject, caused by gating radiation for producing the image with the mechanical diaphragm before said radiation penetrates the subject, said image containing a polygon formed by said edges of said mechanical diaphragm and also containing anatomical image edges representing anatomy of the subject, comprising the steps of:

supplying image data representing said image to a computer together with information describing said closed polygon; and

in the computer, automatically analyzing said image data to detect all image edges in the image, and automatically distinguishing said edges of said mechanical diaphragm in said image data from said anatomical image edges using said information describing said polygon.

16. (New) A computer-readable medium encoded with programming instruction, said medium being loadable into a computer supplied with image data of a subject, said image data being produced by irradiating the subject with radiation gated by edges of a mechanical diaphragm before the radiation penetrates the subject, and said image containing a polygon formed by the edges of the mechanical diaphragm, and also containing anatomical image edges representing anatomy of the subject, said programming instructions causing the computer to:

receive said image data together with information describing said closed polygon;

analyze said image data to detect all image edges in the image;

distinguish the edges of said mechanical diaphragm in said image data from the anatomical image edges using said information describing said polygon; and
include an accurate representation of the edges of said mechanical diaphragm in said image data.

17. (New) A computer programmed to analyze image data representing an image of a subject produced by irradiating the subject with radiation gated by edges of a mechanical diaphragm before the radiation penetrates the subject, said image containing a polygon formed by the edges of said mechanical diaphragm, and also containing anatomical image edges representing anatomy of the subject, said computer being programmed to receive said image data together with information describing said polygon, and to automatically analyze said image data to detect all image edges in the image, and to distinguish the edges of said mechanical diaphragm in said image data from the anatomical image edges using said information describing said polygon.